Health Physics

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY OAK RIDGE NATIONAL LABORATORY
Operated By
CARBIDE AND CARBON CHEMICALS COMPANY
LOCATION Post Office Box P, OAK RIDGE, TENN.

TO C.E. Larson
LOCATION Building 2068

ATTENTION

COPY TO

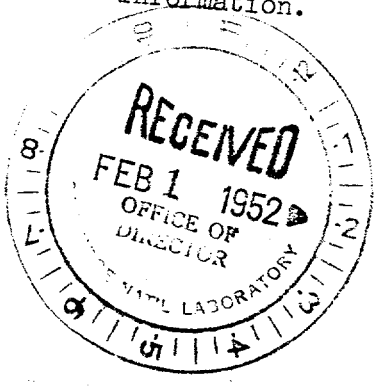
DATE 2-1-52

ANSWERING LETTER DATE

SUBJECT

Here is a copy of a letter from O.W. Kochtitzky for your further information.

Karl
K.Z. Morgan



	Morgan, C. E.	Noted
	Emlet, L. B.	
	Rueff, P. W.	
	Seagren	
		Sent
	File - CEL	

(4-51)

January 30, 1952

MEMORANDUM
To: Files
From: O. W. Kochtitzky

Subject: Fish Kill Near K-25

Inquiry has been directed to M. A. Fletcher, Superintendent of Water Works, K-25, concerning the Fish Kill in the vicinity of K-25 on January 25-26, 1952. There is recorded here the information which was obtained.

There is in connection with the K-25 water system a 2.5 million gallon water storage tank which had leaked from its initial construction. The contractor had made several attempts to stop the leaks with varying degrees of success. For the past year leakage had been so slight that the contractor had not been permitted to do anything until recently. However, in order to complete and close out the contract, a thorough repair job was recently done. (The tank has been out of service for several months and there was no particular rush in placing it back in service since there is another 1.5 million gallon tank available.) After repairs the tank was cleaned and filled for disinfection.

Economics indicated liquid chlorine as the agent of preference over hypochlorite. A dose of 50 ppm was calculated to require 1050 lbs. of chlorine. A one-ton cylinder of chlorine was provided with a tube extending to the bottom of the 45 ft. deep tanks and the rate of feed adjusted until bubbles did not break the surface of the water. Applied in this manner, the dosing required 144 1/2 hours and the exact amount of chlorine used is unknown, but the cylinder was not entirely emptied. On Wednesday, January 23, a surface sample tested 32 ppm but upon mixing by surging the residual was found to be 60 ppm. This chlorine was left in the tank until 9:00 A.M. Friday, January 25, when draining was begun. Ordinarily, this tank can be drained in 9 hours but since there was no rush and the chlorine residual was high it was drained more slowly over a period of 18 1/2 hours.

Mr. Fletcher said that when he was notified of the dead fish in the embayment below the water plant he believed the Security Department suspected sabotage of the water supply, but water plant employees immediately realized the effect of chlorine and demonstrated it by the presence of an odor and orthotolidine residual. The highest residual found by water works personnel was 6 ppm. It is his understanding that personnel from the Radiation Hazards Branch took samples throughout the embayment and found a maximum residual of 3 ppm. A report of the findings of the Radiation Hazards group was prepared, but had not reached the water plant.

Mr. Fletcher stated that he believed all fish in the embayment were killed. No killing was observed in the Clinch River. The fish destroyed were mostly rough fish with only a few game fish being involved. The lamentable thing about it was that "time was not a factor" and the discharge could have been extended over a much longer period of either continuous or intermittent release. While toxic concentrations had not been anticipated, this experience will result in much more careful supervision of similar operations in the future.

O. W. Kochtitzky

cc: KZ Morgan (2)
CS Shoup
RJ Morton
LA Krumholz

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Health Physics

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO C.E. Larson
LOCATION Building 2068

DATE 1-30-52

ANSWERING LETTER DATE

ATTENTION

COPY TO

SUBJECT

Enclosed is a copy of a report from R.J. Morton which accounts for the dead fish in the Clinch River system which was called to my attention in the telephone call I received from you a few days ago.

Karl

K.Z. Morgan, Director
Health Physics Division

KZM/r

Enclosure

3	Larson, C. E.	Noted
2	Emlet, L. B.	
1	Rueff, P. W.	
4		
5		
OPY TO:		Sent
File-CEL		

Dr. K. Z. Morgan

January 29, 1952

Roy J. Morton

Reported Killing of Fish January 25 or 26, 1952, in Embayment of Clinch River.

On January 26 you referred to me a report of dead fish which at that time was understood to have been seen by patrolmen in the area below White Oak Dam. Mr. H. H. Abee and the writer made a brief survey between 3:00 - 5:00 P.M. of that afternoon. We found no dead fish in White Oak Lake, White Oak embayment, or Clinch River as observed on the way down to Gallahar bridge. We found that the death of fish had occurred in the lagoon above the culvert under the patrol road a few hundred feet East of Gallahar bridge and near the K-25 water filtration plant. There were, perhaps, several thousand fish on the bank and in the shallow water around this lagoon. Most were small shad with a few of other species.

I learned later that Doctor C. S. Shoup surveyed the same territory and later got in touch with the patrol officerwho made the report and perhaps also officials at K-25. I understand that the killing of the fish was caused by an unusual discharge of chlorine from the K-25 water plant.

Roy J. Morton, Leader
Waste Disposal Research Section

RJM/br
cc: H.H. Abee

Oak Ridge Health Studies Document Summary Form

DOCUMENT TITLE: Fish Kill Near K-25

DOCUMENT NUMBER OR IDENTIFIER: —

AUTHOR(S): O.W. Kochtitzky
R.J. Morton

PUBLICATION DATE: 1/30/52 1/29/52

DATA TIME PERIOD: Start 1/25/52
Stop 1/26/52

CLASSIFICATION CATEGORY: UNK (UNC) OUO UCNI CL* *Category & Level: FRD or RD or NSI; CONF or S or TS

SITE(S) DOCUMENT ADDRESSES: (K) X Y S ORR MELT (CLIN) WOC WOL (POPL) EFPC PCE BEAR WATT

SOURCE/LOCATION OF DOCUMENT: X-10 ~~ODC~~ OF : Health Physics-General (1952)

DOCUMENT CATEGORY

AI [DL dr dc da] [ED ea (ew) es ef] EP [HO hp hr hs hw] IN IP [ST sa sw ss] TM WP

Primary category - circle once; Secondary category (optional) - circle twice. Circle only one in a bracketed group.

DATE ENTERED INTO DATABASE: BY: InMagic No.

KEYWORDS:
fish kill
chlorine

ABSTRACT:

Two memos describing a fish kill in the embayment below the water plant near K-25 on January 25-26, 1952. The fish kill was reported to have been due to a release of chlorine, which was used to disinfect the tank. ~~The brightest zones~~ No killing was observed in the Clinch River.

ChemRisk Document No. 2663

COPY AT: ACA

REVIEWER: G M Bruce DATE REVIEWED: 3/28/96